

# EUROPEAN PATENT OFFICE

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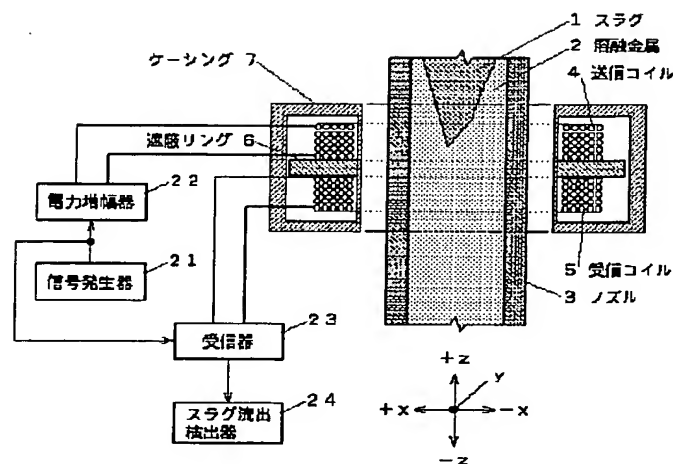
APPLICATION NUMBER : 08167079

APPLICANT : NIPPON STEEL CORP;

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TITLE : DETECTION COIL DEVICE



**ABSTRACT :** PROBLEM TO BE SOLVED: To improve slag detection sensitivity by interposing a conductive body to suppress propagation of the magnetic field, generated by a transmitting coil, to a receiving coil.

**SOLUTION:** An electromagnetic shield ring 6 shields the magnetic flux from a transmitting coil 4 toward a receiving coil 5 so as to pass the ring 6 outside a nozzle 3. A signal generator 21 generates an AC signal of a prescribed frequency, an power amplifier 22 impresses the AC voltage in the form of amplified AC signal to a transmitting coil 4. The voltage to induce a receiving coil 5 is amplified by a receiver 23 and then it is given to a slag flowout detector 24. The slag flowout detector 24 compares a level/phase of the received signal to both the standard value corresponding to a shape/material of nozzle 3 and a steel kind/flow rate of molten metal and the reference value decided based on the sensitivity adjusting value set by an operator, switching from molten metal to slag is detected.

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